202020

Velo-City Global 2010

Professor John Whitelegg
The Stockholm Environment Institute


IPSWICH RD


454-TKX


ONLY
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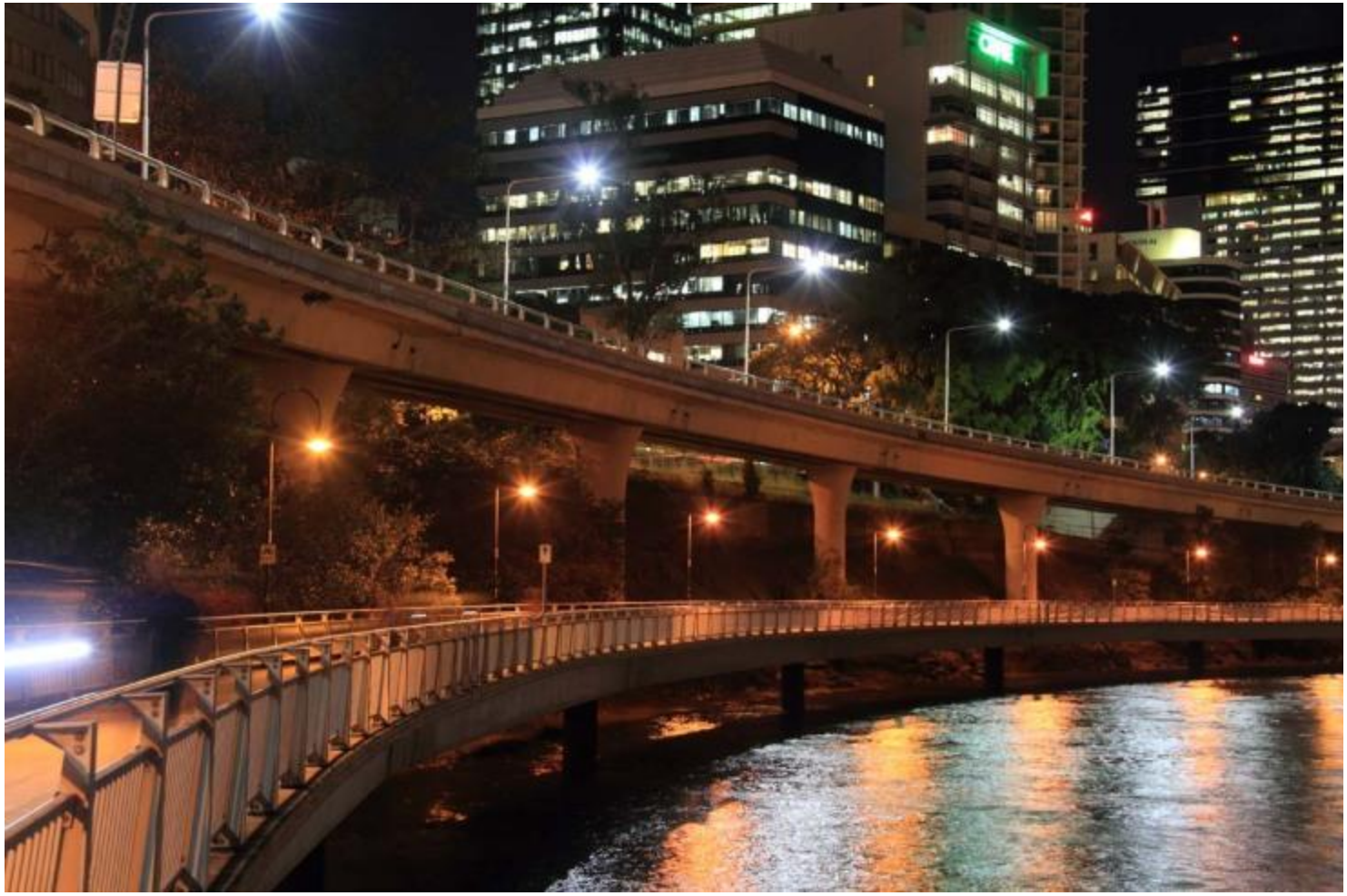
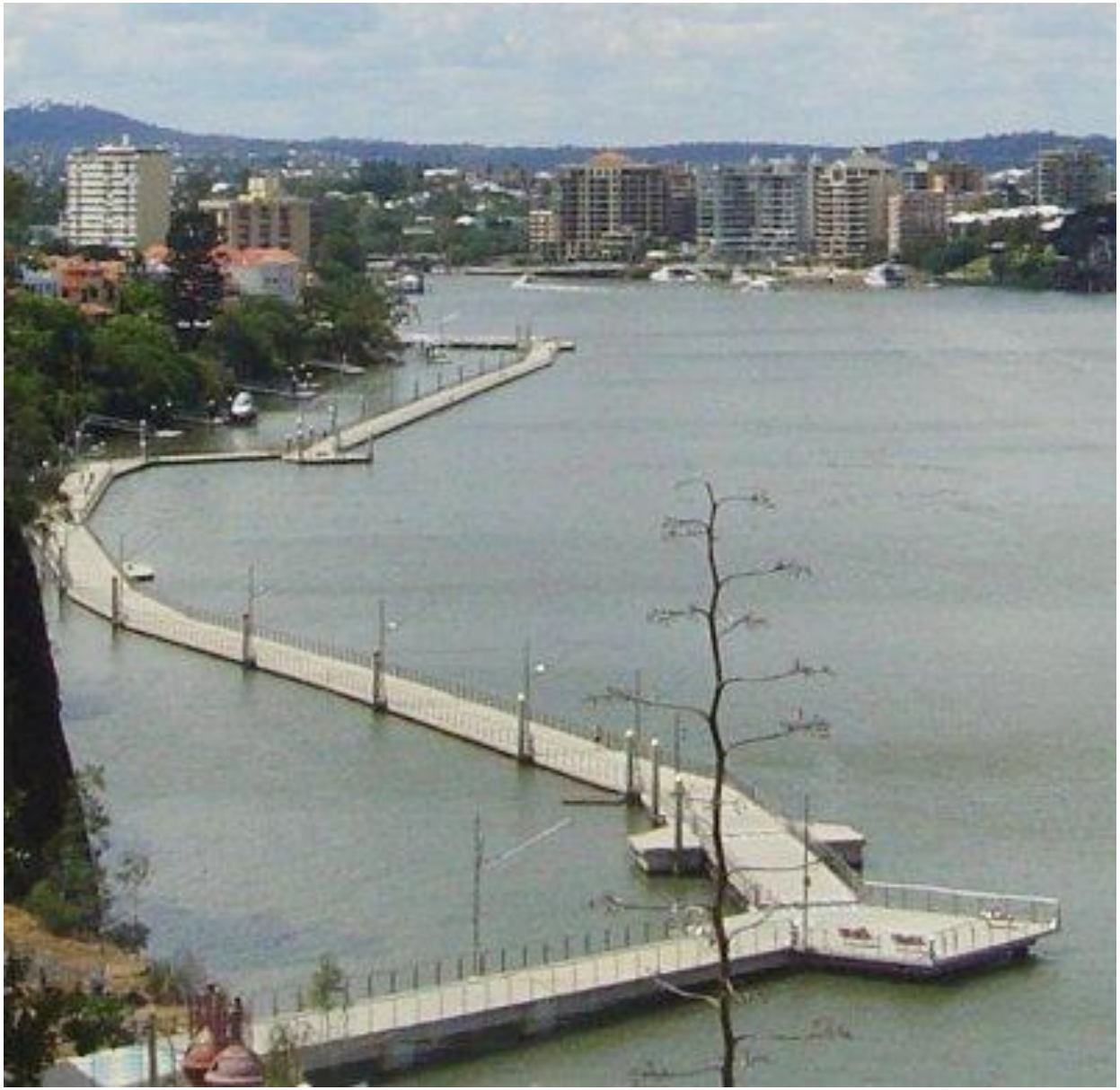




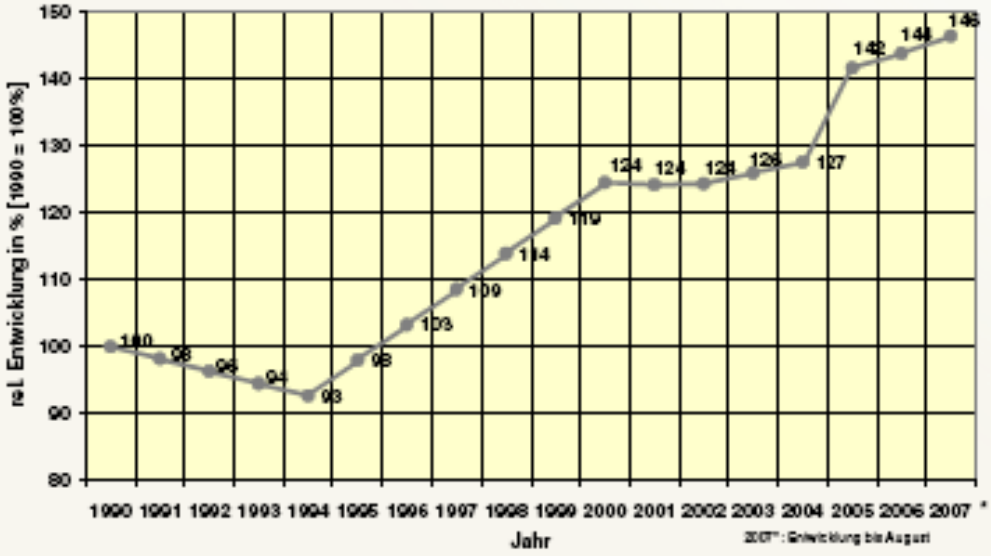

Cycle Centre


King George Square station

GREEN WEEK
changing our behaviour

Berlin

policy for bicycle transport: success story for climate protection policy



development of bicycle use 1990-2007: traffic counting + 46%

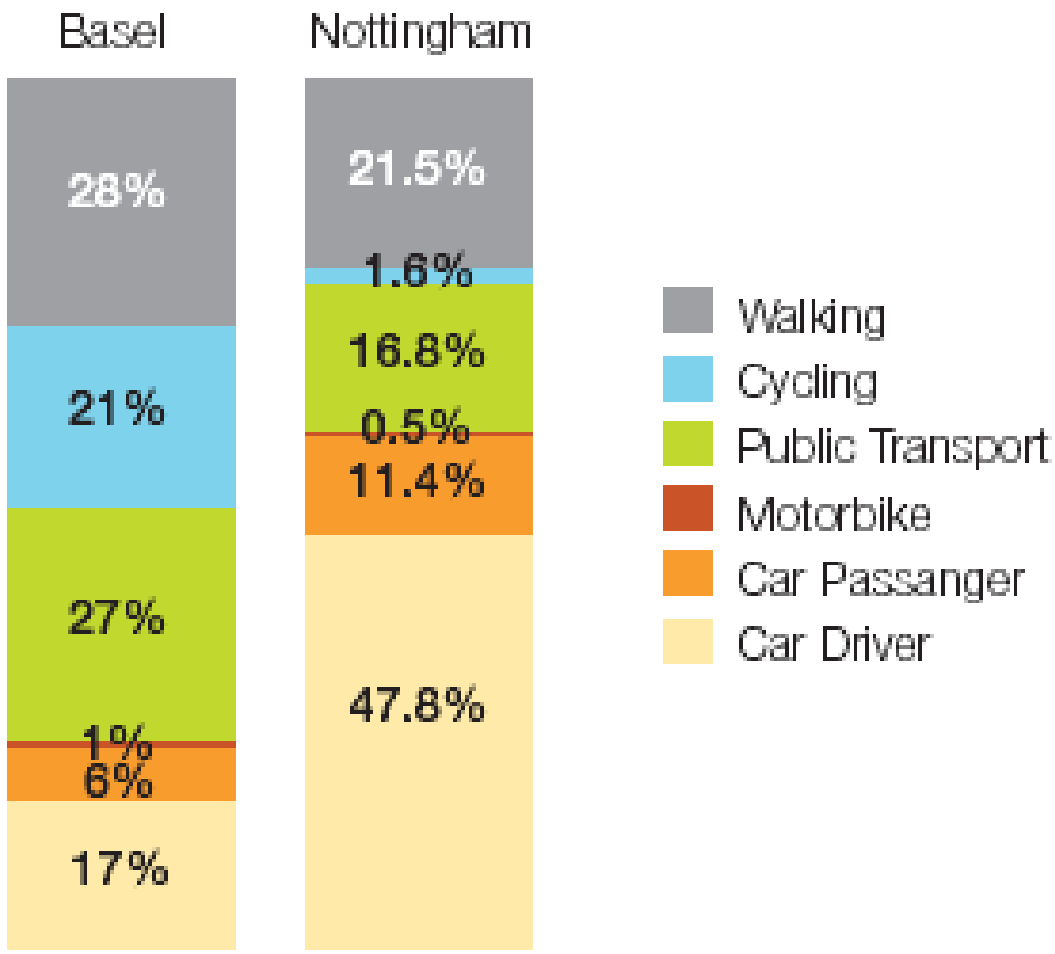
modal share:

1998: 10% of daily trips by bicycle

2010: 15% of daily trips by bicycle

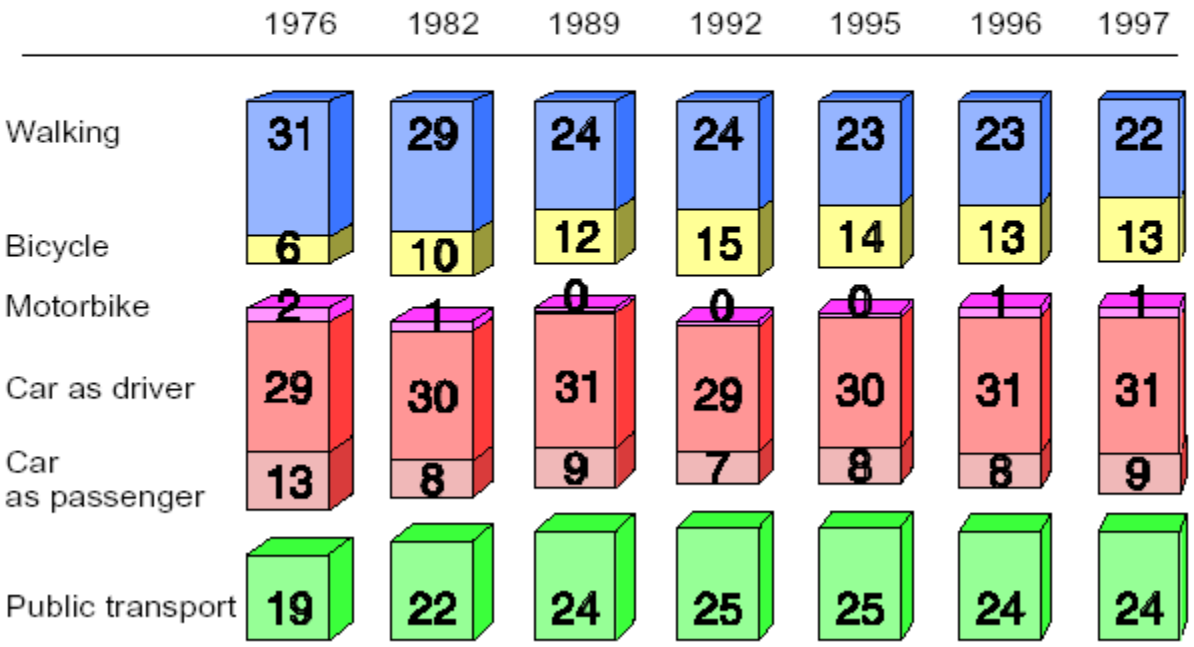
Mode travel choice in Basel, Switzerland and Nottingham, UK

% trips per person (Socialdata)



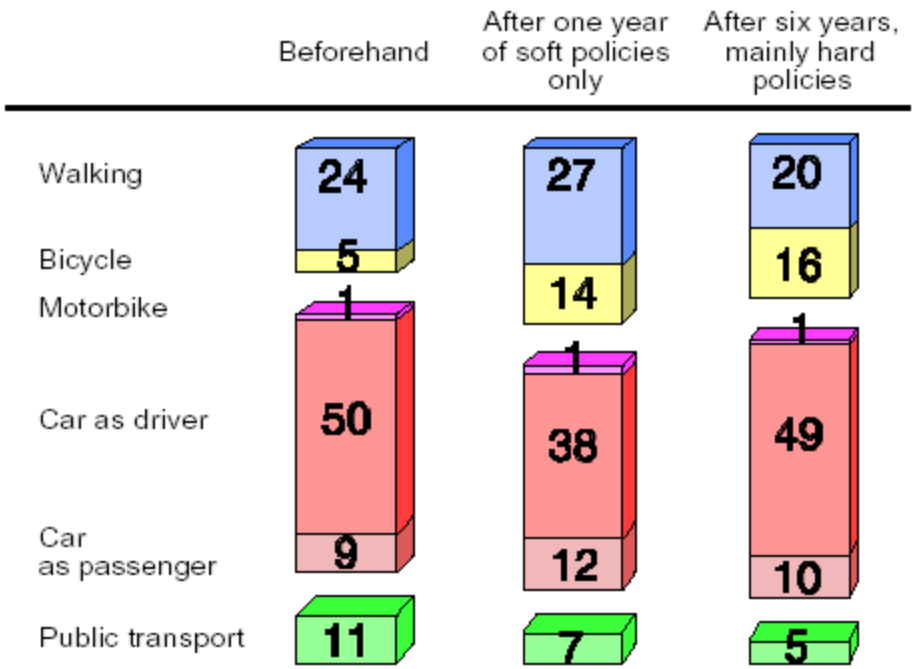
MODE CHOICE

- MUNICH -



BICYCLE-FRIENDLY CITY

DETMOLD



Modal Split Distributions for Selected German Cities

City (year) (ranked by bicycle use)	Population (000)	Percent of Trips by Travel Mode (all trip purposes)			
		Bicycle	Walking	Public Transport	Auto
Muenster (1994)	270	32	22	10	37
Bremen (1991)	554	22	21	17	39
Freiburg (1992)	179	19	21	18	42
Hannover (1990)	524	16	23	22	39
Munich (1995)	1,257	15	23	25	38
Cologne (1992)	961	11	30	17	41
Berlin (2003)	3,400	10	25	27	38
Nuremberg (1995)	500	10	24	21	45
Dusseldorf (1990)	578	9	30	18	42
Kassel (1994)	192	7	28	19	45
Stuttgart (1990)	599	6	28	23	43
Essen (1990)	627	5	27	15	57

Sources: Werner Brog and Erhard Erl, "Can Daily Mobility Be Reduced or Transfered to Other Modes," European Conference of the Ministers of Transport, Paris, France, Round Table 102, March 1996; and U.S. Department of Transportation, Nationwide National Transportation Survey, Washington, D.C., 1992.

Pucher: Walking and Cycling for Public Health

Increases in bike share of urban trips from mid-1970s to mid-1990s in selected German cities

City	Time Period	Change in Bicycle Modal Split Share	Percentage Increase in Bicycle Share
Munich	1976 to 1992	6% to 15%	+150%
Nuremberg	1976 to 1995	4% to 10%	+150%
Cologne	1976 to 1992	6% to 11%	+83%
Freiburg	1976 to 1992	12% to 19%	+58%
Essen	1976 to 1990	3% to 5%	+67%
Bremen	1976 to 1994	16% to 22%	+38%
Muenster	1976 to 1994	29% to 32%	+10%
Average for all urban areas in Western Germany	1972 to 1995	8% to 12%	+50%

Sources: Werner Broeg and Erhard Erl,"Can Daily Mobility Be Reduced or Transfered to Other Modes," European Conference of the Ministers of Transport, OECD, Paris, France, Round Table 102, March 1996; and supplemental data collected from individual cities by the author.

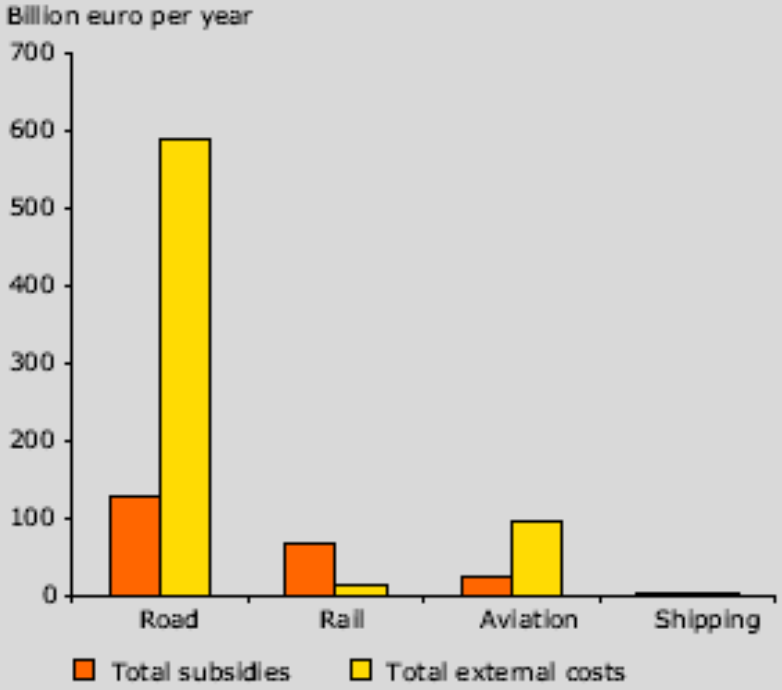
Co-benefits

- The economy
- Climate Change
- Space and time
- Health
- Community

Economics for beginners

- Motorised transport does not pay its costs
- Transport is a significant cost burden that can be reduced through sustainable transport policies
- Current transport policies are expensive and poor value for money

Figure 7.2 Total external costs and transport subsidies found for EU-15



Note: The numbers for subsidies comprise on-budget subsidies, annual public funding of infrastructure and exemptions from or reductions to fuel tax and VAT. The numbers for external costs includes costs of accidents, noise, air pollution, climate change, nature and landscape, up- and downstream processes and additional urban costs.

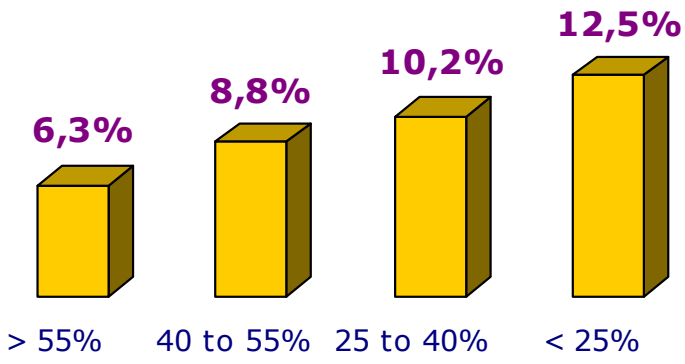
Source: EEA, 2007b.

2. Performance and cost of transport

Cost of transport

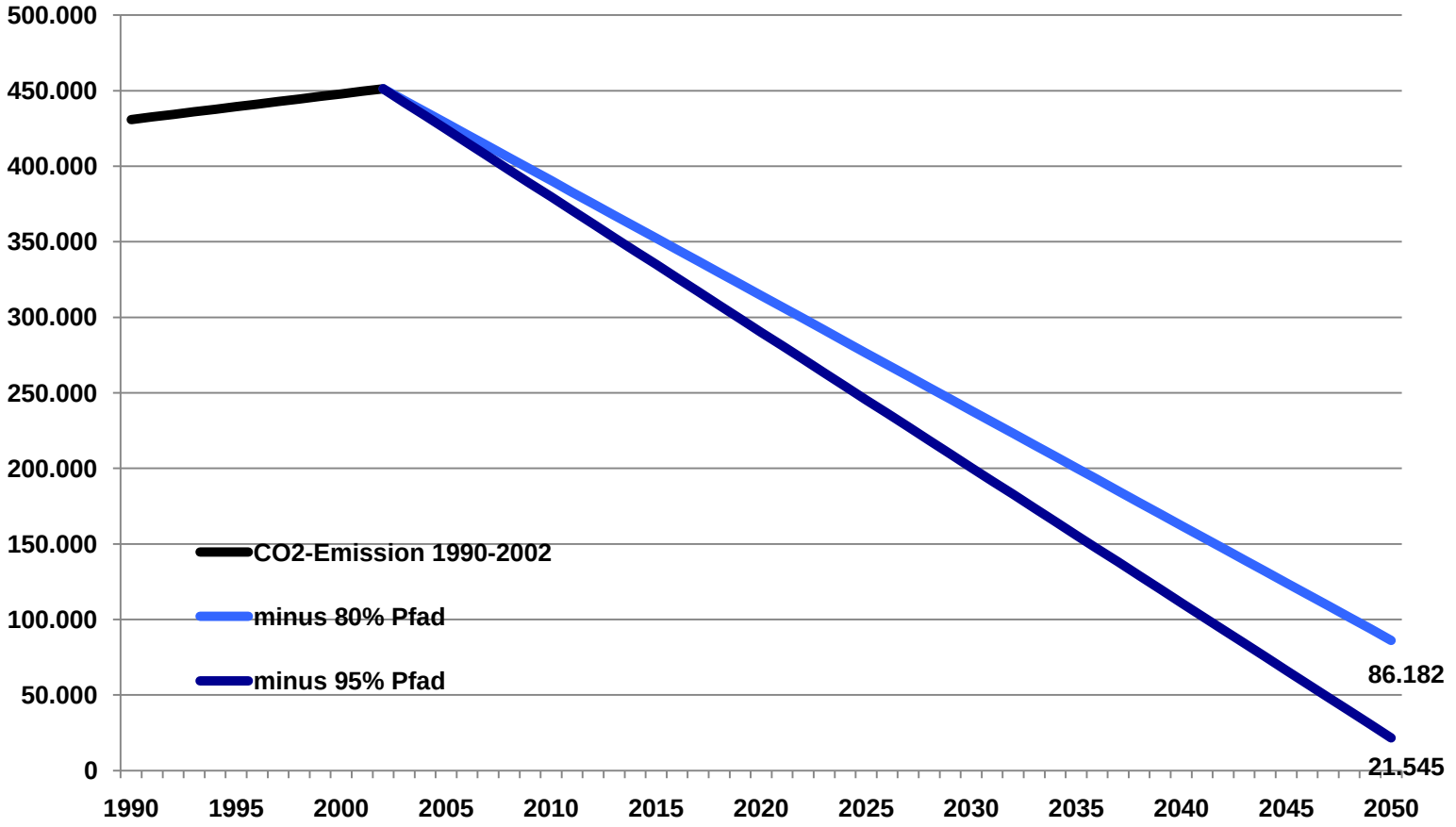
Energy consumption

- Cost of transport for the community includes public transport operation and investment, road expenditure and car use.
- Cost of transport is lower in dense cities with a higher modal share of walking, cycling and public transport.



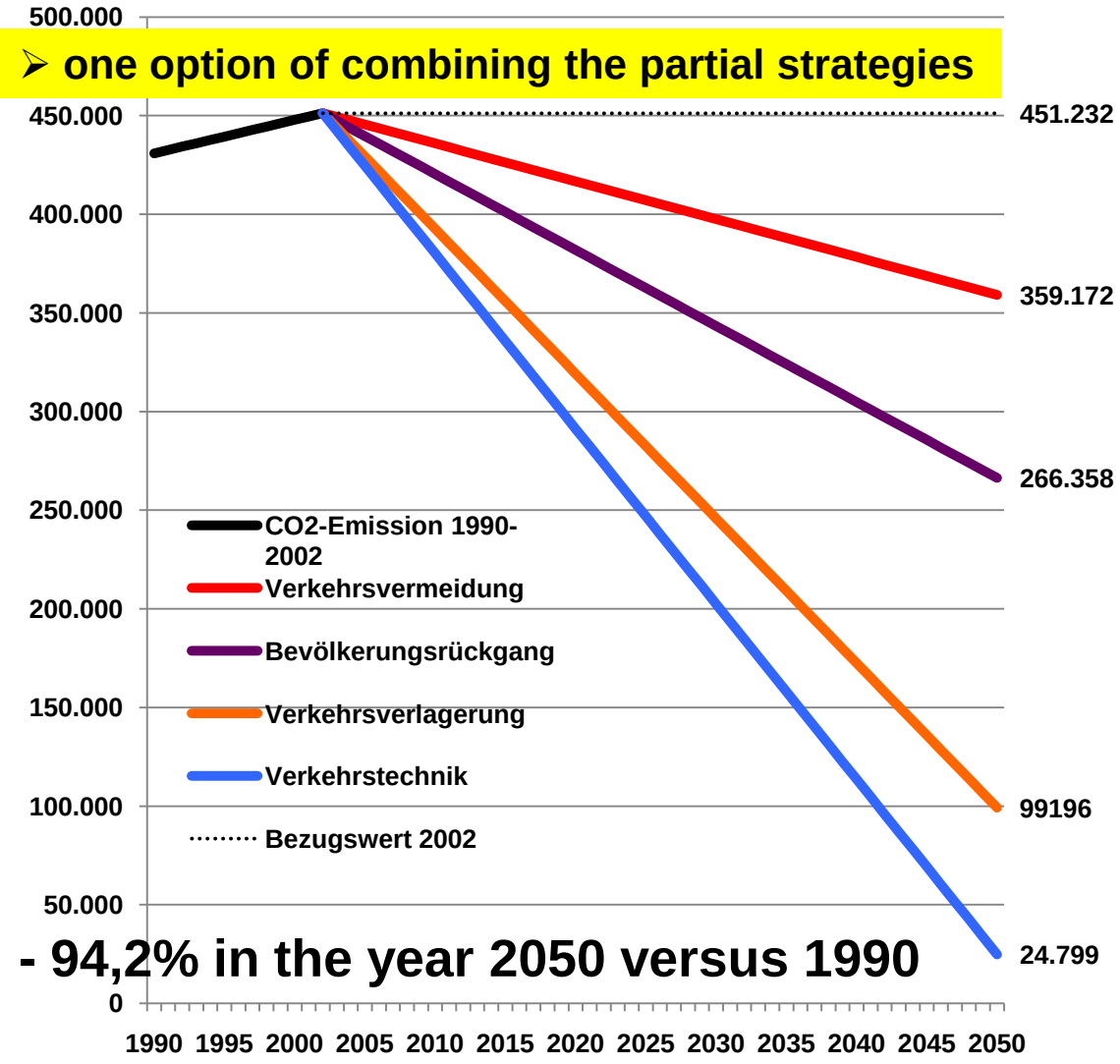
Low Carbon City W

Reduction need for the passenger transport in Wuppertal until 2050: -80% up to -95% CO_2-emissions



➢ **Can we achieve this? How can we achieve it?**

Wuppertal 2050



Transportation avoidance

-20% person kilometers

- ➢ to plan removal & re-organisation of the City!

Decline of population

to translate the -116.251 residents into a 100% CO_2-reduction

- ➢ to actively realise the CO_2-reduction potential of the shrinking

Modal shift of transportation

Walking:	44%
Bicycle:	15%
Public transport:	40%
Individ. motorised transport:	1%

- ➢ to design a „Car-free City“!

Transport engineering

-3%-path: to quarter CO_2-emissions

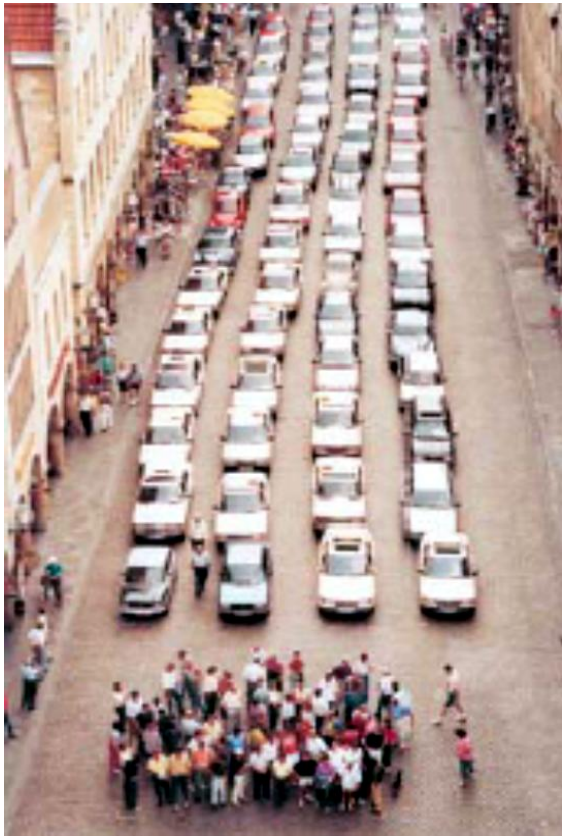
- ➢ to politically develop an extreme efficiency for cars & public transport

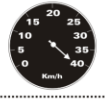
The zero carbon project (2050)

- SEI team
- Accurate calculations of the amount of carbon we can strip out of the system
- Salami technique
- Fiscal, behavioural, spatial, technology
- Hybrid approach
- Identify Policy pathways


SPACE

Amount of space required to transport the same number of people by car, bus or bicycle



Transport mode	Speed	Space required per person
Pedestrian		0.8 M^2 per person 
Cyclist		3 M^2 per person 
Fully Occupied Car		6.2 M^2 per person 
Fully Occupied Car		20 M^2 per person 
Car with 1 Person		18.7 M^2 per person 
Car with 1 Person		60 M^2 per person 
Bus - Full and 1/3 Full		3.1 M^2 per person (full) 9.4 M^2 per person (1/3 full) 
Bus - Full and 1/3 Full		9.4 M^2 per person (full) 28.1 M^2 per person (1/3 full) 
Light Rail/Metro - Full and 1/3 Full		1.5 M^2 per person (full) 4.6 M^2 per person (1/3 full) 
Light Rail/Metro - Full and 1/3 Full		2.2 M^2 per person (full) 6.9 M^2 per person (1/3 full) 

“The typical American male devotes more than 1,600 hours a year to his car …
He spends four of his sixteen waking hours on the road or gathering his resources for it”

(Illich, 1974, 18-19)

http://www.stationwagon.com/gallery/1973_Chevy_Impala.html

“The model American puts in 1,600 hours to get 7,500 miles: less than five miles per hour”

(Illich, 1974, 19)

Speed

- It is not possible to have a comfortable, encouraging, rewarding walk and cycle environment with speeding traffic
- 20mph/30kph is enough
- why do we reject science?

THE KEY POINT…

A city that permits 50 or 60 kph will *never* be child friendly and will *always* deter physical activity

Graz

(Austria)

House of Commons

Transport Committee

Ending the Scandal of Complacency: Road Safety beyond 2010

Eleventh Report of Session 2007–08

Report, together with formal minutes, oral and written evidence

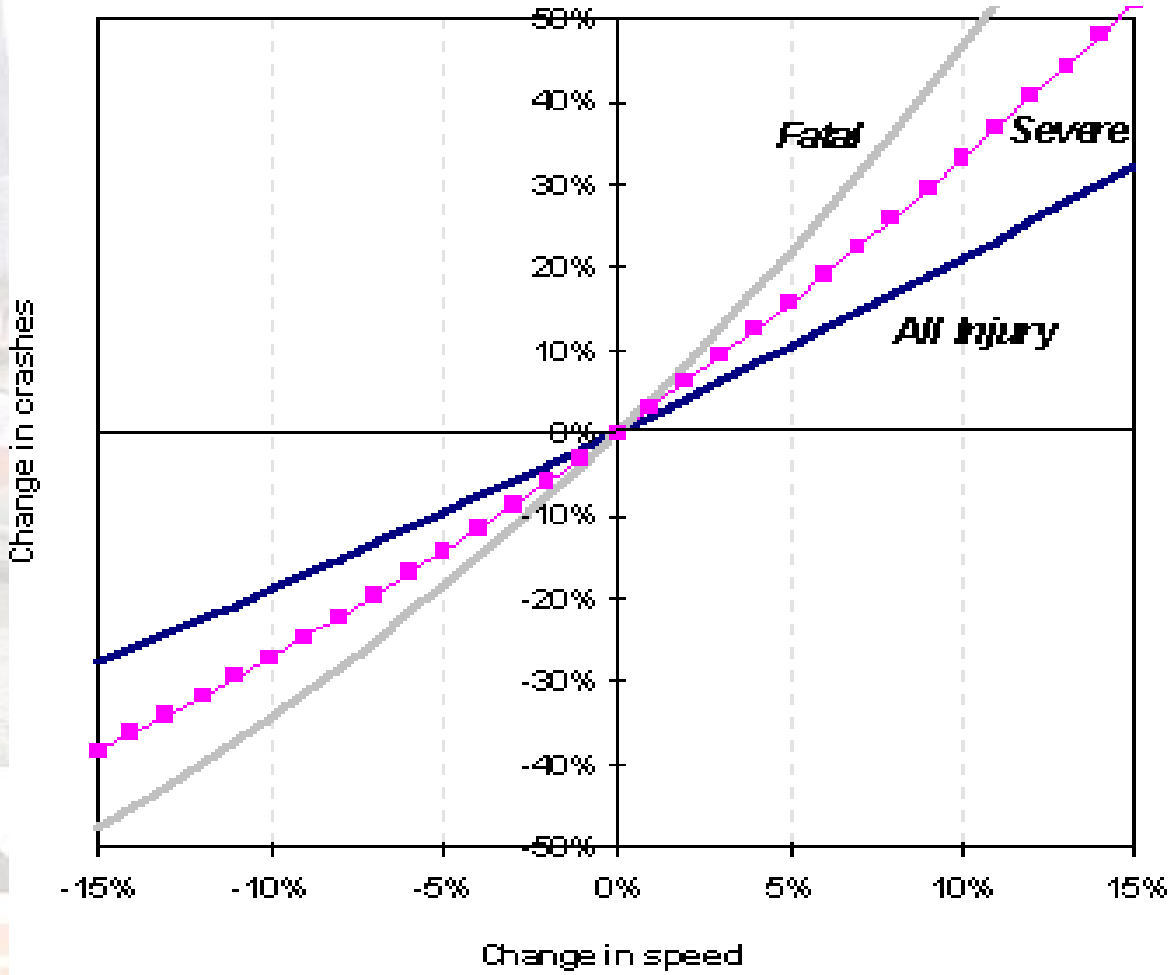
Ordered by The House of Commons
to be printed 15 October 2008

What are your chances of surviving a collision if you are struck by a car while walking or cycling?

Vehicle Speed	% chances of Surviving	% of vehicles exceeding that speed in built-up areas	
		Cars	Heavy Goods Vehicles
20 mph (app. 32km/h)	95	95	91
30 mph (app. 48km/h)	45	72	55
40 mph (app. 65km/h)	5	12	5

Source: Parliamentary Advisory Council on Transport Safety (1996) Taking Action on Speeding

Effects of changes in speed on injury and fatal crashes: empirical relationships (from Nilsson 1981)



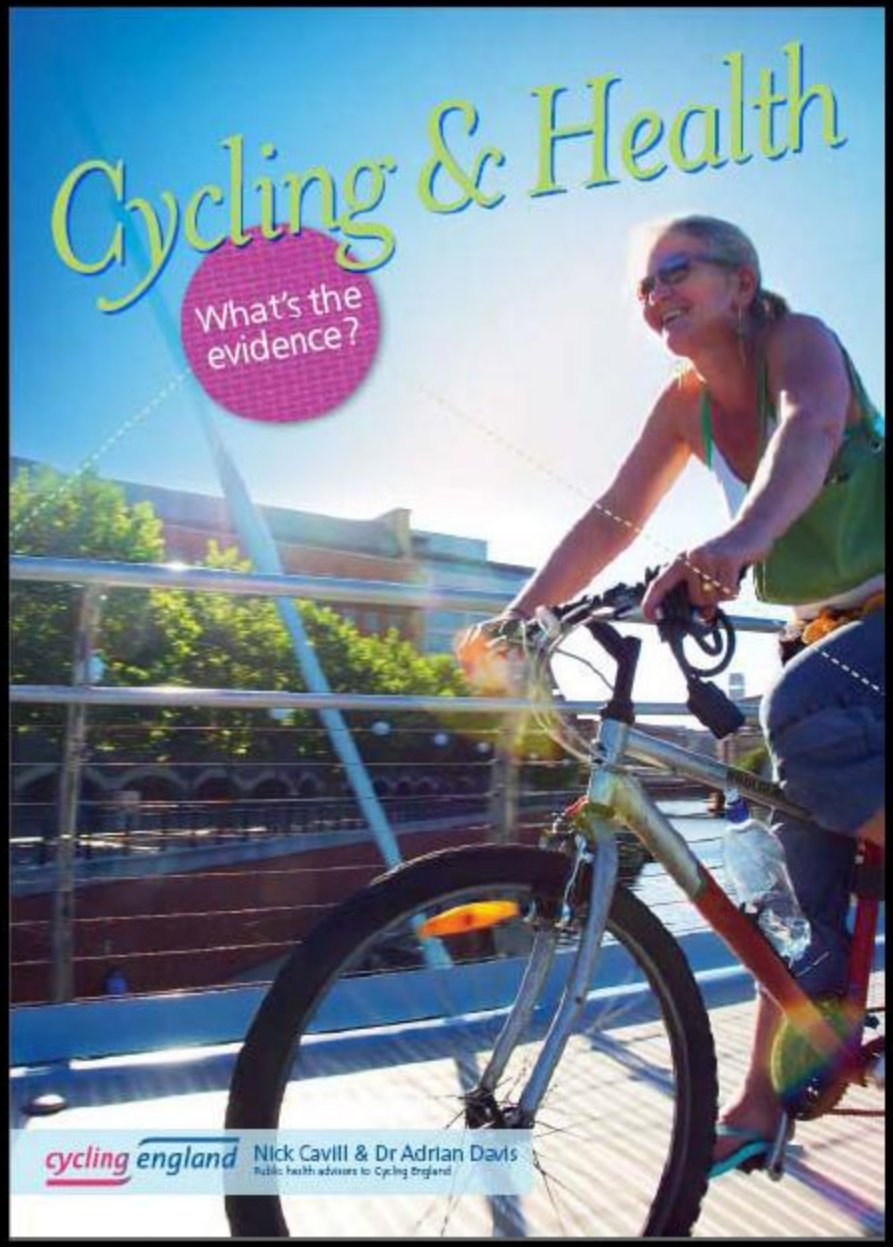
Key Points

- **Safety and security need “slow cities”**
- **Legal measures are needed**

Health

- Obesity
- Cardiovascular disease
- Mental health
- Reducing air pollution
- Reducing killed and seriously injured
- Supporting social interaction amongst the over 70s

Cycling is Healthy



40% reduction in risk of death

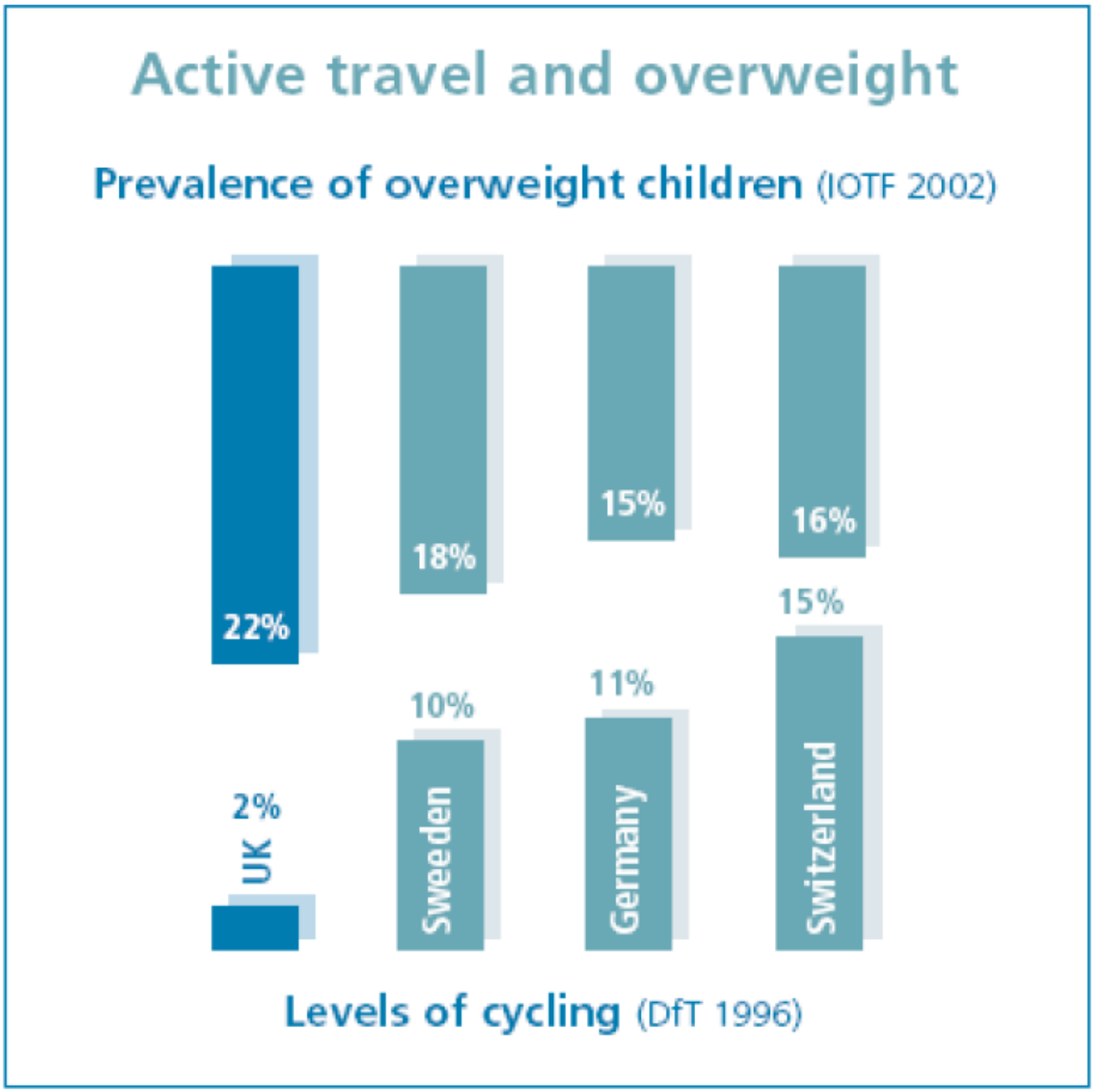
2-3 years longer life

10 years fitter

One death per 33m km

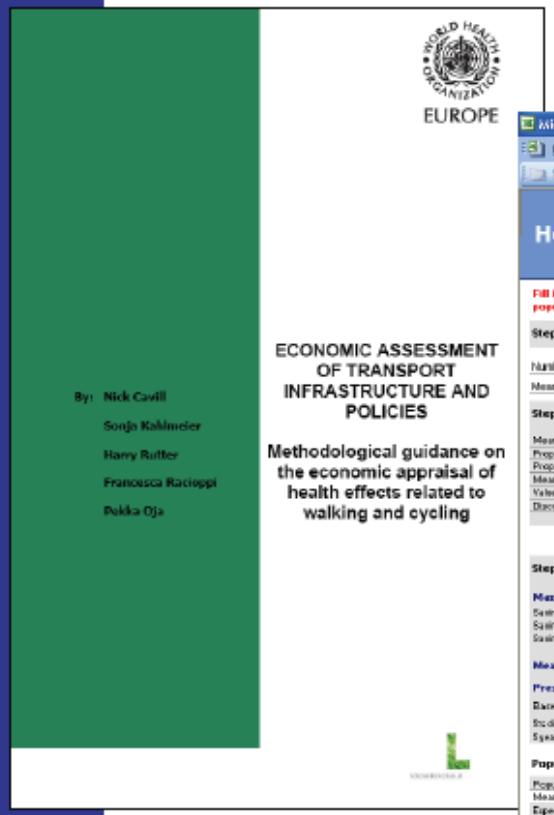
Benefits outweigh costs

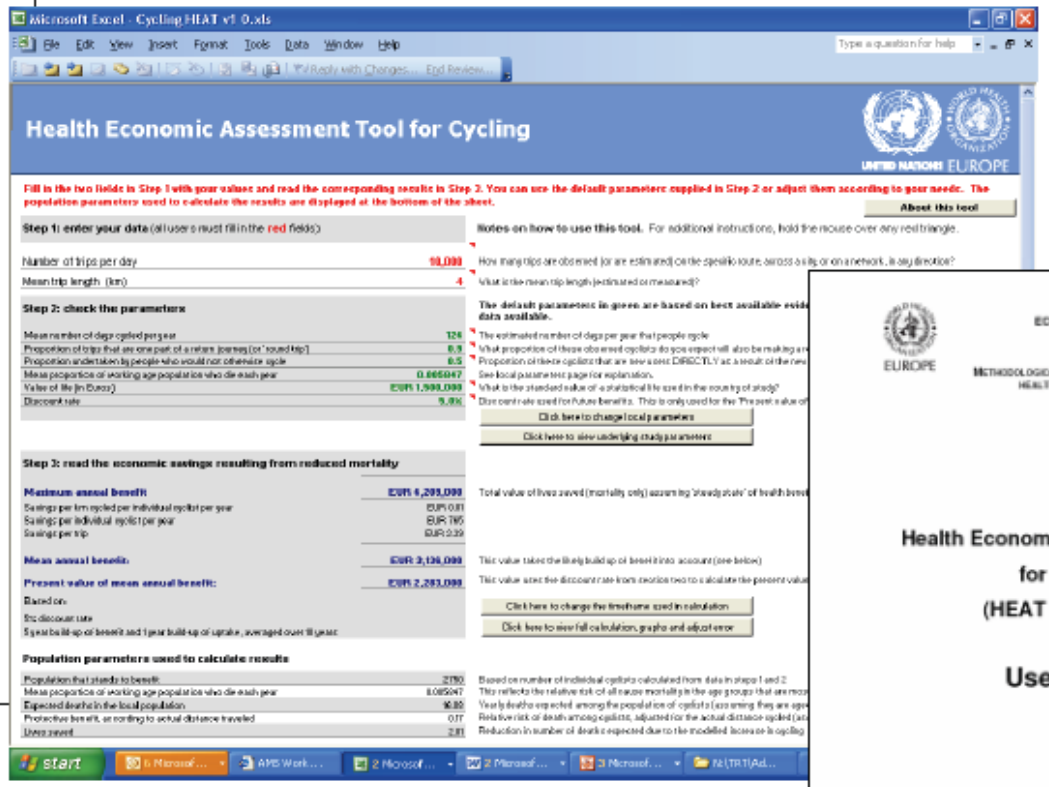
Active travel and overweight

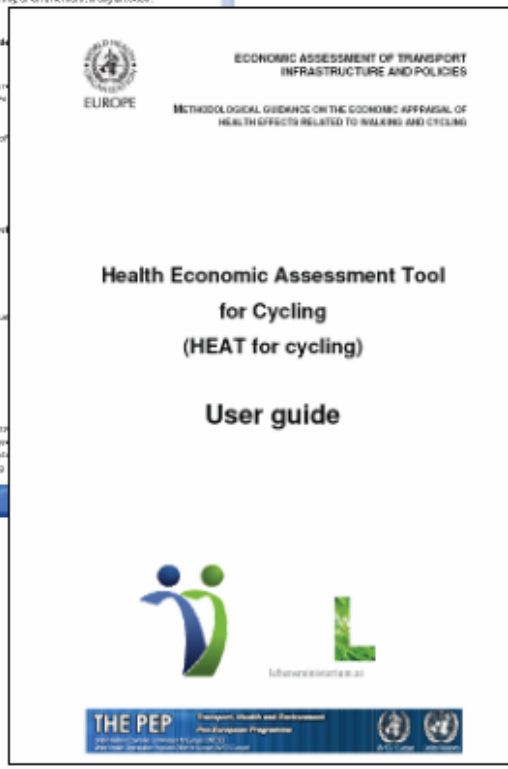


Sustrans, 2008.

WHO guidance and tool for economic assessment of cycling and walking







Download the guidance document, HEAT for cycling and user guide from
www.euro.who.int/transport/policy/20070503_1

- Walking and cycling
- Evidence based
- Expert consensus
- Easy to use methods
- Applicable across European region

Mayer Hillman

The study concluded that those who cycled 60 miles a week from the age of 35 could add 2.5 years to their life expectancy

Cycling Towards Health and Safety, British Medical Association, 1992, page 117

Community

- Donald Appleyard “Livable streets” , 1981

HEAVY TRAFFIC
16,000 vehicles per day

0.9 friends per person
3.1 acquaintances per person

MEDIUM TRAFFIC
8,000 vehicles per day

1.3 friends per person
4.1 acquaintances per person

LIGHT TRAFFIC
2,000 vehicles per day

3 friends per person
6.3 acquaintances per person

Next Monday morning

- Road traffic reduction strategy
- Parking strategy
- Carbon reduction strategy
- Prices should tell the ecological truth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